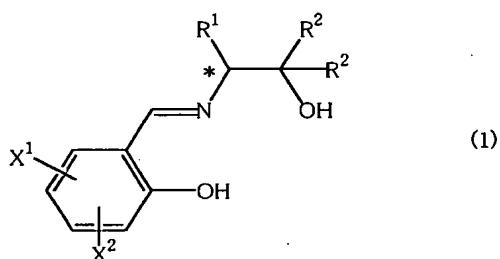


CLAIMS

1. An optically active copper catalyst composition comprising

- 5 (a) an optically active salicylideneaminoalcohol represented by the formula (1):



wherein R¹ and R² are the same or different, and

independently represent a substituted or unsubstituted

- 10 lower alkyl group, a substituted or unsubstituted aralkyl group, or a substituted or unsubstituted aryl group;

X¹ and X² are the same or different, and independently represent a hydrogen atom, a lower alkoxy group, a nitro group, a lower alkoxycarbonyl group, a cyano group or a

- 15 halogen atom; and * represents an asymmetric center, provided that both of X¹ and X² don't represent hydrogen atoms,

(b) a monovalent or divalent copper compound, and

(c-1) a lithium compound or

- 20 (c-2) a compound selected from aluminum compounds having Lewis acidity, titanium compounds having Lewis acidity, boron compounds having Lewis acidity, zirconium compounds

having Lewis acidity and hafnium compounds having Lewis acidity.

2. An organic solvent solution or a slurry containing the optically active copper complex composition according to claim 1, which is obtained by contacting the optically active salicylideneaminoalcohol represented by the formula (1), the monovalent or divalent copper compound, and the lithium compound or the compound selected from c-2) in an organic solvent.

3. The optically active copper complex composition, the organic solvent solution or the slurry containing the composition according to claim 2, which is obtained by contacting the optically active salicylideneaminoalcohol represented by the formula (1), the monovalent or divalent copper compound, and the lithium compound.

4. The optically active copper complex composition or the organic solvent solution or the slurry containing the composition according to claim 2, which is obtained by contacting the optically active salicylideneaminoalcohol represented by the formula (1), the monovalent or divalent copper compound, and the Lewis acid.

5. The optically active copper complex composition according to claim 1, wherein the lithium compound is lithium salt, lithium alkoxide or lithium hydroxide.

6. The optically active copper complex composition

according to claim 1, wherein aluminum compounds having Lewis acidity is trihaloaluminum, trialkylaluminum, trialkoxyaluminum, triaryloxyaluminum, or tris(pentafluorophenyl)aluminum,

5 titanium compounds having Lewis acidity is tetrahalotitanium or tetraalkoxytitanium,

boron compounds having Lewis acidity is boron trifluoride diethyl etherate, triethylborane, triphenylborane, or tris(pentafluorophenyl)borane,

10 zirconium compounds having Lewis acidity is zirconium halide (IV) or the complex, or tetraalkoxyzirconium, and hafnium compounds having Lewis acidity is hafnium halide (IV) or the complex.

7. The optically active copper complex composition

15 according to claim 6, wherein aluminum compounds having Lewis acidity is trimethylaluminum, triethylaluminum, triisobutylaluminum, triethoxyaluminum, or triphenoxyaluminum,

titanium compounds having Lewis acidity is titanium

20 tetrahalide, tetraisopropoxytitanium or tetra(n-butoxy)titanium,

zirconium compounds having Lewis acidity is zirconium tetrachloride, zirconium tetrachloride tetrahydrofuran complex or tetra(n-butoxy)zirconium, and

25 hafnium compounds having Lewis acidity is hafnium

tetrachloride or hafnium tetrachloride tetrahydrofuran complex.

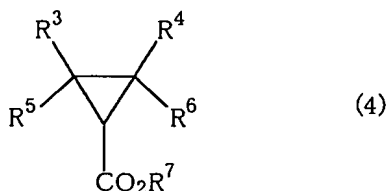
8. The optically active copper complex composition according to claim 1 or 2, wherein the compound selected
5 from (c-2) is methoxylithium, triethoxyaluminum, tris(pentafluorophenyl)aluminum, tetraisopropoxytitanium or tris(pentafluorophenyl)borane.

9. The optically active copper complex composition according to claim 1, wherein the amount of the compound
10 selected from (c-2) used is 0.3 to 5 moles per 1 mole of the monovalent or divalent copper compound.

10. The organic solvent solution or the slurry containing the optically active copper complex composition according to claim 2, wherein the amount of the compound selected
15 from (c-2) used is 0.3 to 5 moles per 1 mole of the monovalent or divalent copper compound.

11. The optically active copper complex composition, or the organic solvent solution or the slurry containing the composition according to claim 1 or 2, wherein the
20 monovalent or divalent copper compound is a C2-5 copper organic carboxylate, copper halide, copper methanesulfonate, copper trifluoromethanesulfonate, copper carbonate or copper hydroxide.

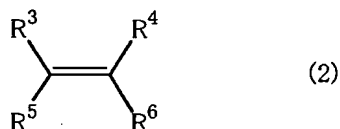
12. A process for producing an optically active
25 cyclopropane compound represented by the formula (4):



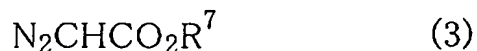
wherein R^3 , R^4 , R^5 and R^6 are the same or different, and independently represent a hydrogen atom, an alkyl group which may be substituted with one or more halogen atom, an

5 alkenyl group which may be substituted with one or more halogen atom, an aryl group or an aralkyl group; provided that, when R^3 and R^5 are the same, R^3 and R^4 are different from each other; and R^7 represents a C1-6 alkyl group, which comprises reacting a prochiral olefin represented by

10 the formula (2):



wherein R^3 , R^4 , R^5 and R^6 are as defined above, with a diazoacetic acid ester represented by the formula (3):



15 wherein R^7 is as described above, in the presence of the optically active copper catalyst composition according to any one of claim 1 to 6.

13. The process for producing an optically active cyclopropane compound according to claim 7, wherein the

20 prochiral olefin (2) is 2,5-dimethyl-2,4-hexadiene.